Draft Supplemental Environmental Assessment

South Jetty Breach Fill Maintenance

Westport, Grays Harbor County, Washington
November 2004

US Army Corps
of Engineers®
Seattle District

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Responsible Agency: U.S. Army Corps of Engineers, Seattle District (Corps).

Abstract: This document supplements, and incorporates by reference, the *South Jetty Breach Fill Maintenance Final Environmental Assessment*, prepared in February 2004 by the Corps of Engineers: *South Jetty Breach Fill Maintenance Final Environmental Impact Statement (U.S. Army Corps of Engineers, 2004a)*. That document evaluated the impacts of placement of approximately 25,000 cubic yards of sand on the south jetty breach fill in February 2004, as well as expected additional placements of sand over the subsequent three to five years.

This supplement evaluates impacts on Half Moon Bay resources that would be expected if the Corps of Engineers were to take interim breach fill maintenance actions to preserve the status quo by protecting against the risk of breach recurrence in the vicinity of the South Jetty, pending the development of a long term management strategy. The document also evaluates new biological information on benthic invertebrate, fish, and bird resources in Half Moon Bay gathered after the February 2004 EA was finalized. Also described are the responsive sand placement actions that will be implemented if conditions indicate that an undue risk of a breach is developing, utilizing two pre-designated triggering criteria. Responsive action No. 1 would involve placement of sand along the southwest shore of Half Moon Bay above +9.0 feet, MLLW, while Responsive action No. 2 would involve placement of sand on top of the existing breach fill area south of the South Jetty in response to overtopping.

The project area shoreline and bay are characterized by a high rate of natural disturbance, due to exposure to strong wind and wave action, and large volumes of sediments eroded and deposited in the area. Nevertheless, the bay and shoreline manage to provide usable habitat for fish, benthic invertebrates, and shorebirds. Limited benthic production occurs sporadically, depending on location and tidal elevations, especially at lower intertidal zones. Bottom fish, and probably forage fish, feed on invertebrates present in the project area, but juvenile Chinook salmon are consuming primarily pelagic species as they prepare for their ocean life history. Shorebirds are not found in abundance in the late fall due to regular human activity in the area. Dune grass may be damaged due to sand placement activities but it would be replanted if necessary in the subsequent Spring season. Either interim action is for maintenance and would not contribute to cumulative impacts on project area resources.

The Corps has determined that the proposed action is not a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of an environmental impact statement.

THE COMMENT PERIOD ON THIS SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT WILL END AT CLOSE OF BUSINESS, NOVEMBER 23, 2004.

Please send questions or requests for additional information to:

Dr. Stephen Martin
Environmental Resources Section
U.S. Army Corps of Engineers
P.O. Box 3755
Seattle, Washington 98124-3755
stephen.g.martin@usace.army.mil
206-764-3631

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1. INTRODUCTION

Pursuant to the National Environmental Policy Act (NEPA), this environmental assessment (EA) supplements the February 2004 *South Jetty Breach Fill Maintenance Final Environmental Assessment*, which is hereby incorporated by reference. That document evaluated the impacts of placement of approximately 25,000 cubic yards of sand on the south jetty breach fill in February 2004, as well as additional placements of sand over the subsequent three to five years. The purpose of this EA supplement is to: present new biological information on the invertebrate, fish, and bird resources of Half Moon Bay gathered during sampling efforts in late 2003 and throughout 2004; re-evaluate biological impacts of sand placement activities using this new information; explain Corps decision thresholds for determining if future breach fill maintenance actions are necessary and will be implemented; and describe specific actions proposed to maintain the status quo during the 2004-2005 winter storm season, and their effects.

1.1 Background

After winter storms breached the sand spit adjacent to the Grays Harbor south jetty in 1993, there were concerns about the stability of the south jetty structure and potential damages to the navigation channel. In response, the Corps placed about 600,000 cubic yards of sand to close the breach. As described in the February 2004 EA, the Corps has undertaken a number of measures since 1994 to extend the life of the existing breach fill and some of these efforts do show promise for extending the fill life well into the future. However, the integrity of the breach fill may be compromised if ongoing erosion in its southeast sector is allowed to continue.

The persistent loss of sediment from the Grays Harbor entrance and adjacent beaches is expected to continue indefinitely. Shoreline erosion in the vicinity of the south jetty could result in the eventual breaching of the landmass adjacent to the south jetty. In order to assess the threat of such a breach to the Federal navigation project and to develop a long-term strategy to maintain and protect Federal navigation project features, the Corps has initiated a study to formulate and assess various management alternatives. This study, the Long Term Management Strategy (LTMS) study, will conclude with a recommendation for how to best ensure the continued operability of navigation project features. Completion of the LTMS study and initiation of recommendation(s) made by the study is expected in 2006.

Prior to completion of the LTMS study, there is a tangible risk that, without further preventative action, continued erosion in the vicinity of the south jetty could produce another breach. Pending completion and review of the data collection and breach analysis efforts presently underway, there is uncertainty regarding the degree of risk of another breach occurring, as well as the nature and scope of any resultant impacts on the navigation project. In view of this uncertainty, the Corps plans to take action to preserve the status quo and protect against a breach recurrence until a definitive evaluation of the connection between another breach and the Federal interest in maintaining existing navigation project features is complete.

1.2 Project Purpose and Need

The purpose of the proposed work is to preserve the status quo, by protecting against an undue risk of the recurrence of a breach in the vicinity of the South Jetty. If conditions indicate that an

undue risk of a breach is developing, one or both of two sand placement actions would be implemented to nourish the area(s) adjacent to the south jetty. This is needed to protect the south jetty and navigation channel from damage which could be caused in the event of another breach. Preventative maintenance of the breach fill is a much more cost-effective strategy to maintain the status quo than after-the-fact emergency repairs, and requires a relatively small quantity of material to restore the height and width of the fill area. Proactive action could prevent more costly and voluminous replacement if a breach were allowed to develop.

1.3 Location

The project area is located in Westhaven State Park, Westport, Grays Harbor County, Washington (T16N, R12W, Section 1). The location of the proposed work is shown on the vicinity and location maps in Figure 1.

1.4 Authority

The Grays Harbor and Chehalis River Project, including maintenance of the Federal navigation channel and the South Jetty, is authorized by the River and Harbor Act of August 30, 1935 (House Document 53, 73rd Congress, 2nd Session) and the Water Resources Development Act of November 17, 1986 (Public Law 99-662). The proposed work is within the Grays Harbor and Chehalis River Project operations and maintenance (O&M) authority because its intent is to protect navigation features, including the south jetty and navigation channel. This is a proper use of O&M funds because, until a definitive determination can be made of any connection between a breach and the Federal interest in maintaining navigation facilities, the Corps acknowledges uncertainty in the degree of risk of a breach, as well as in the nature and scope of any impacts of the navigation project as a result of such as breach. In view of this uncertainty, the Corps will take action to preserve the status quo by protecting against the risk of a breach recurrence.

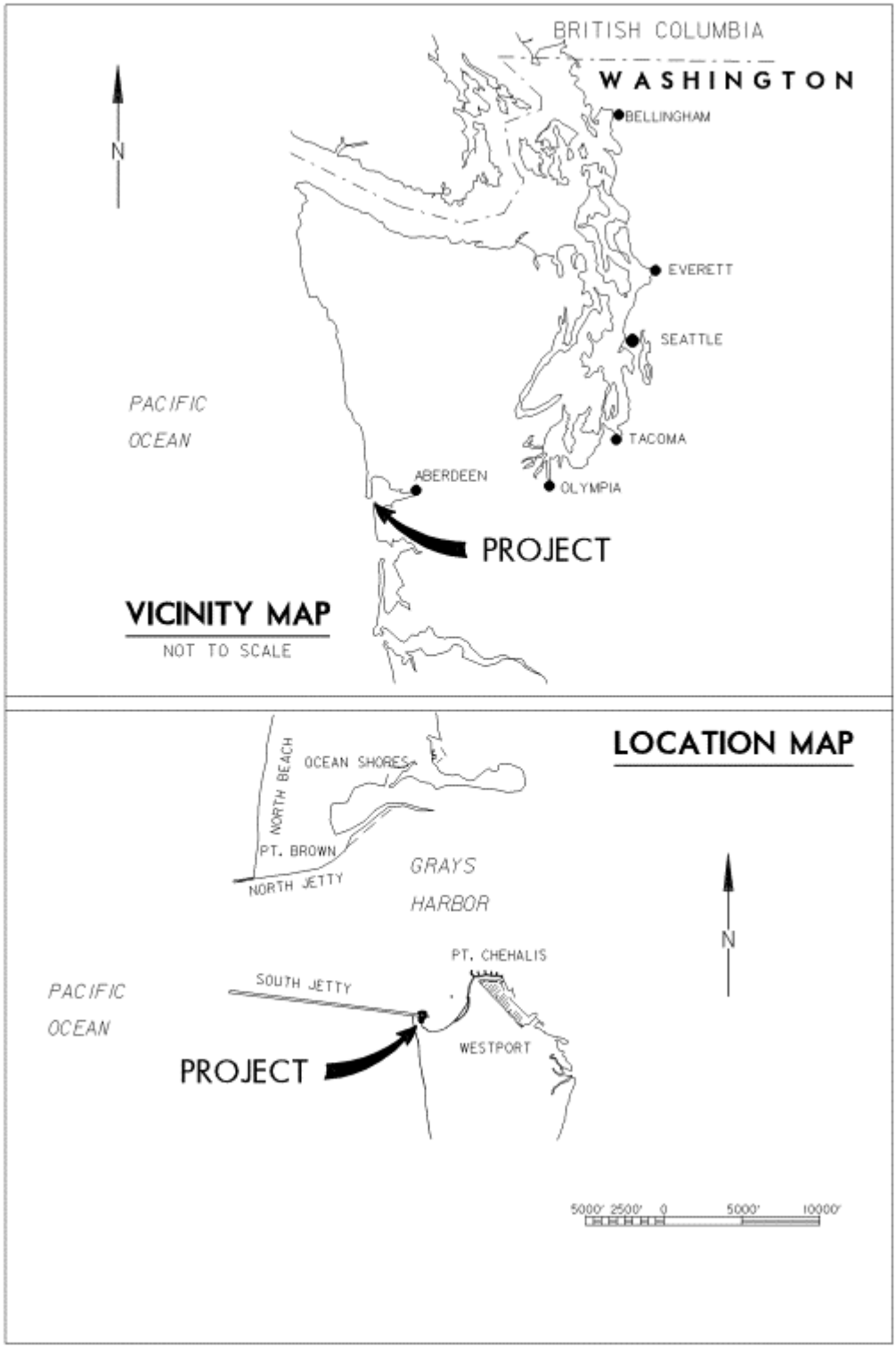
1.5 Previous documents

Additional information on the history of Grays Harbor and Chehalis River Navigation Project engineering structures, erosion in the project area, and the natural resources of Grays Harbor can be found in previous Corps documents. The following documents are incorporated here by reference, and are available for inspection at the Seattle District office. Complete bibliographic information for these documents can be found in the reference section of this assessment.

- South Jetty Breach Fill Maintenance Final Environmental Assessment (February 2004)
- South Jetty Sediment Processes Study, Grays Harbor Washington: Evaluation of Engineering Structures and Maintenance Measures (April 2003)
- Half Moon Bay Transition Gravel and Cobble Placement Final Environmental Assessment (November 2003), rescinded December 15, 2003
- Design Analysis (Revised), Grays Harbor, Washington FY 1999 South Jetty Repair (September 1999)
- Long Term Maintenance of the South Jetty at Grays Harbor, Washington, Evaluation Report (June 1997)

- Point Chehalis Revetment Extension Project, Westport, Washington, Interagency Mitigation Agreement (October 1998)
- Review of Long-Term Maintenance Plans for the South Jetty, Grays Harbor, Washington; Report by a Special Subcommittee of the Committee on Tidal Hydraulics and Coastal Engineering Research Board (1995)
- South Jetty Breach Fill Final Environmental Assessment (April 2002)
- South Jetty Repair Final Environmental Assessment (July 1999)
- Final Environmental Assessment: Fiscal Years 2001-2006 Maintenance Dredging and Disposal, Grays Harbor and Chehalis River Navigation Project, Grays Harbor County, Washington (April 2001)
- Programmatic Biological Evaluation: Fiscal Years 2001-2006 Maintenance Dredging and Disposal, Grays Harbor and Chehalis River Navigation Project, Grays Harbor County, Washington (December 2000)
- North Jetty Performance and Entrance Navigation Channel Maintenance, Grays Harbor, Washington September 2003 ERDC/CHL TR-03-12

Figure 1. Location and Vicinity Maps



2. ALTERNATIVES

The Corps has considered three alternatives for interim action breach fill maintenance: No Action, Placement of additional transitional cobble/gravel mix material, and Contingent Sand Placement.

2.1 No Action

Refer to the February 2004 final environmental assessment for a discussion of impacts that would accrue if this alternative was selected: South Jetty Breach Fill Maintenance Final Environmental Assessment February 2004. Additional information gathered since February 2004 did not change the effects determination for this alternative.

2.2 Placement of Additional Transitional Cobble/Gravel Material

Refer to the February 2004 final environmental assessment for a description of this alternative. This alternative was excluded from further consideration because its implementation would involve the placement of materials in locations and quantities where they do not presently exist. Implementation would thus deviate from the project purpose of maintaining the status quo pending completion of the Long Term Management Strategy (LTMS). As placement of transitional cobble and gravel may subsequently be found not justified in preserving Federal navigation facilities, doing so prior to the full evaluation of the need for – and effects of – that placement may exceed the Corps' authority to operate and maintain existing navigation facilities.

2.3 Contingent Interim Action Sand Placement

Interim action sand placement will be undertaken only when, and only to the extent that, it is necessary. Two trigger thresholds have been developed to guide the decision of whether or not to implement an appropriate responsive action. These thresholds are independent of each other and hence one or both could occur this fall/winter. If neither of the triggering thresholds are met, the no action alternative would be selected and the Corps would not take an interim action to prevent further loss of breach fill material at this time. If they are required at all, actions to protect against a breach may prove necessary more than once pending completion of the LTMS. The action-triggering thresholds and corresponding responses are as follows:

Threshold No.1: It is determined through evaluation of pertinent survey data that 15,000 cubic yards of sand has eroded from the southwest corner of the Half Moon Bay beach since the most recent sand placement event. The 15,000 cy of sand represents the approximate average annual loss of material in this corner of the bay.

Responsive Action No.1: Placement of 20,000 cubic yards of clean sand along approximately 1,000 linear feet of beach in the southwest corner of Half Moon Bay, as illustrated in Figure 2. This quantity of sand was determined after analysis of erosion from annual survey data. Sand would be excavated from the existing buried revetment mitigation stockpile and truck hauled on the existing state park access road. Minor grading would occur for pioneering an access route on the sand and for truck safety dozing sand over the bank top. No road building materials (i.e., rock) will be used in transporting the sand. The excavated material would be

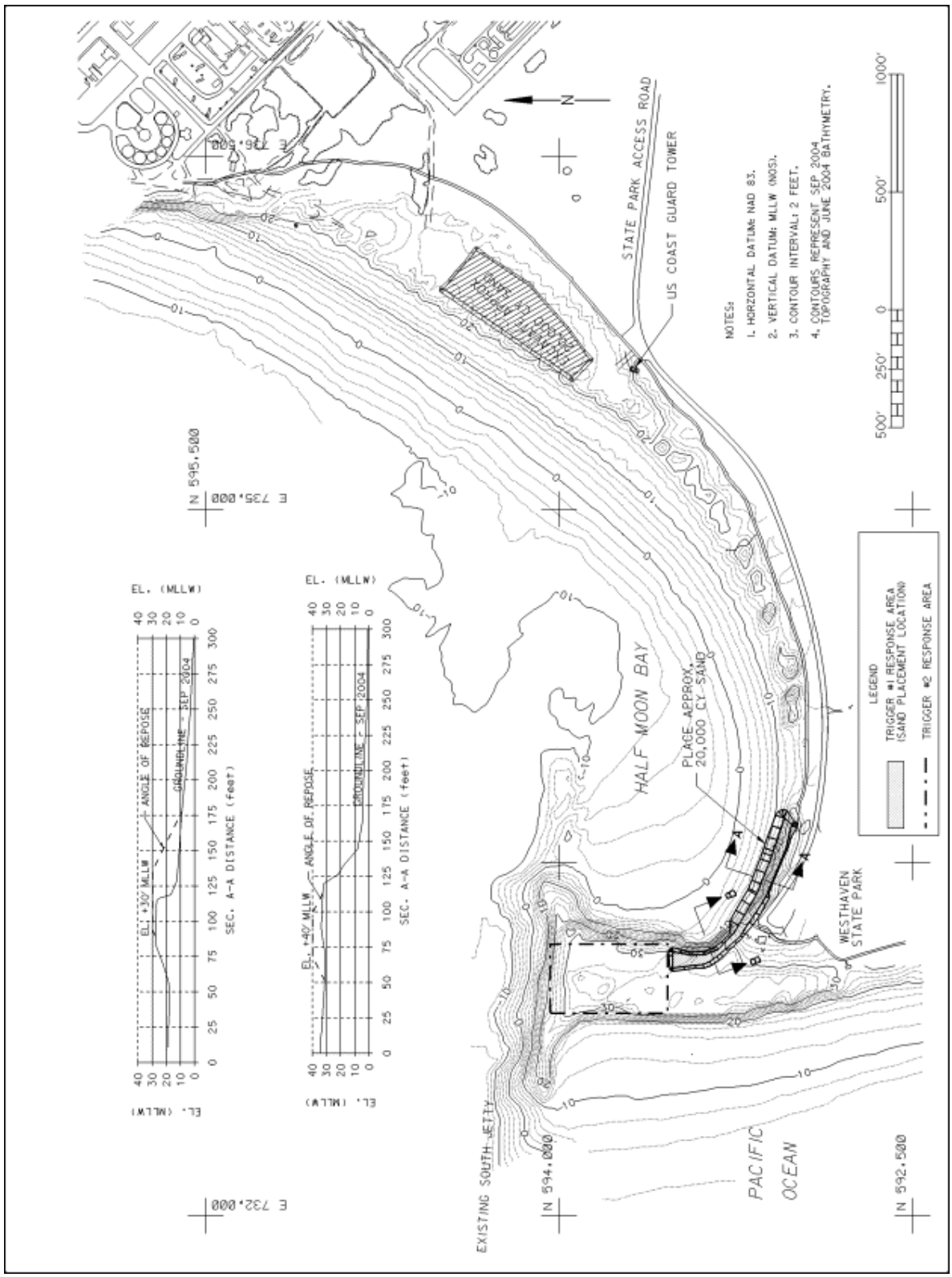
placed shoreward of the +9 foot MLLW contour line (the mean higher high water contour) at its natural angle of repose to minimize impacts on intertidal ecology. Currents and wave action are expected to regrade and disperse this sand eastward along the beach and offshore. Sand grain size would be consistent with existing beach sand grain size. Care would be taken to minimize impacts on dune grass.

Threshold No. 2: The breach fill footprint south of the South Jetty is overtopped by water from the west, resulting from a storm event(s).

Responsive Action No. 2: Placement of up to 20,000 cubic yards of clean sand on top of the breach fill area, above elevation +9 feet MLLW (mean higher high water) at a location within the fill footprint as illustrated in Figure 2. The precise location and quantity of placed sand would be selected based on an analysis of the most effective means of responding to the observed overtopping conditions and the most efficacious means of addressing the risk of further overtopping and head-cutting. The sand would be excavated and mechanically transferred from the existing buried revetment mitigation stockpile to the placement area, utilizing either track vehicles that require no improved road or with trucks, by constructing a temporary access route using removable steel plates.

These responsive actions are proposed as the most effective actions to address breach risk conditions actually presented in the winter of 2004-05. Any subsequent contingent interim actions triggered during the LTMS study period may vary from the 2004-05 action. If there is appreciable variation from the 2004-05 action plan in subsequent contingent interim action episodes, this environmental assessment will be further supplemented with more specifically tailored analysis of responsive action plans and their expected environmental effects.

Figure 2. Sand Placement Response Areas for Trigger Thresholds 1, 2



3. EXISTING ENVIRONMENT

Extensive information on the existing environment of Grays Harbor has been provided in previous technical studies, as well as environmental and biological evaluations (see Section 1.5 for a list of available documents). Only new information generated through sampling efforts since the February 2004 *South Jetty Breach Fill Maintenance Final EA* is provided here.

3.1 Geology/Sediment Dynamics

Reference section 4.1 of the February 2004 *South Jetty Breach Fill Maintenance Final EA* for a general discussion of the existing geological environment and sediment dynamics. Since publication of the Final EA, recent aerial mapping has indicated that the sandy shoreline at the terminus of the gravel in the southwestern corner of Half Moon Bay (HMB), which had receded in 2003, continues to erode, but at a slower rate in 2004. The dynamic nature of HMB sediments is indicated in Figure 3 (in color) by substantive beach height changes in the period Summer 2003 - Summer 2004. Most of the bay shoreline in that period eroded more than 2.5 feet (vertical). Also, because of sloughing of placed sand, there is accretion in some areas of over 2.5 feet thick (vertical).

A Point Chehalis Revetment Extension Project, Interagency Mitigation Agreement, effective December, 1998, contains a placement schedule that commits the Corps to periodically place sand from the Grays Harbor Entrance Channel into the Half Moon Bay stockpile for renourishment.

3.2 Vegetation

Two of the three placement sites from February, 2004 and the excavation site are largely unvegetated. The remaining placement site (directly south of the jetty), as well as much of the breach fill, was planted with the native dune grass (*Elymus mollis*) in 2002. Adjacent dune areas are dominated by the invasive non-native European beach grass (*Ammophila arenaria*). Other non-native invasive plants such as Scot's broom (*Cytisus scoparius*) and Himalayan blackberry (*Rubus discolor*) are present to the east along the back side of what remains of the Half Moon Bay foredune and a haul road used during previous construction projects.

3.3 Benthic Invertebrates

Because of the need to analyze benthic invertebrate communities in Half Moon Bay and South Beach in 2004, Seattle District contracted with Science Applications International Corporation (SAIC) to collect and evaluate samples from intertidal and subtidal areas in January and June, 2004. One objective of the January sampling was to obtain a good picture of winter population density and community composition that had established in spite of high dynamic conditions of erosion/deposition in the bay and previous sand placement activities that occurred in late winter, 2002. A second objective was to obtain baseline information that could be used to evaluate changes in population density and community composition following sand placement in February 2004 (Army Corps of Engineers, 2004b).

Sampling was conducted January 20-21 at Half Moon Bay and South Beach, Westport, Washington. Intertidal core samples were collected at thirteen sample sites in western Half

Moon Bay, and eight sites on South Beach (Figure 3, color). Intertidal benthic samples were collected at four elevations (+12 feet, +8 feet, +4 feet, and 0 feet, MLLW)[1], while subtidal core samples were collected at eight sample sites in western Half Moon Bay at elevations -4 feet, -8 feet, and -12 feet, MLLW at high tides using the M/V Shoalhunter and deploying a modified Young van Veen sampler. At each intertidal and subtidal station, a total of ten replicate core samples were collected. A minimum of three replicates from each station was analyzed for benthic infauna. At each station, a separate sediment sample was collected for grain size analysis.

Data collected in January for Half Moon Bay may be summarized as follows:

a. Highest abundances and numbers of types of invertebrates were found at subtidal stations.

b. Samples in the west end of the bay, protected by the jetty, had higher abundances than those further to the east.

c. The ribbon worm (*Nemertea* sp.) was the dominant organism at most sample stations, except three, where segmented marine worms (annelids) were dominant.

d. Juvenile organisms less than 0.25 mm dominated abundance measurements.

e. All stations consisted almost entirely of sands and gravels. Percent fines ranged from 1.9% to 0%. Intertidal stations were predominantly sand, although five of thirteen stations contained appreciable gravel, as much as 31%.

As the interim action sand placement will occur on the west side of Half Moon Bay, this supplemental EA focuses on the data obtained there and not South Beach. The South Beach data can be viewed at the Seattle District website, Half Moon Bay and South Beach Benthic Invertebrate Baseline Study . Suffice it to say that in January at South Beach, abundances and organism types were similar to those of Half Moon Bay, there were more organisms at higher intertidal areas, the ribbon worm was dominant, and grain size consisted of over 99% sand.

As stated above, the dominant benthic invertebrates in Half Moon Bay were ribbon worms (*Nemertea* indet.), followed by other marine worms (polychaetes and other annelids). These generally live within the sediment and are generally more suited as a food sources for shorebirds and bottom fish, rather than for salmonids. Juvenile salmonids are known to feed on crustaceans such as harpacticoids, or Corophium sp., that are generally found living at the sediment-water interface. Crustaceans were the next most abundant organisms in Half Moon Bay, but at much lower numbers in comparison to the ribbon worms and polychaetes.

Overall, the SAIC report opined that January benthic invertebrate production was relatively low, which would be expected during the winter months in an area subject to constant storm activity.

[1] Samples were not collected at +12 feet for transects HMB2 and HMB3 due to the large cobble material present in these locations.

Summer sampling was conducted in late June, 2004. Sampling methodology for collection, preservation, identification, and enumeration of invertebrates was identical to that followed in January. Additionally, concurrently with benthic sampling, several fish species, including juvenile Chinook salmon, were collected by beach seine for stomach analyses. The objective of this work was to compare numbers and types of food organisms found in the fish stomachs with organism abundance and composition of benthic communities surveyed in Half Moon Bay in June. In theory, this could help determine the bay's relative importance as a feeding area during a time when juvenile Chinook salmon were migrating through the area. Other fish species collected for the stomach content analyses were: surf smelt, shiner perch, speckled sanddab, sand lance, English sole, American shad, and sand sole.

At this time of preparing this draft supplemental EA, the draft report for the June 2004 benthos and fish stomach sampling was not available, however preliminary data sent to the Corps indicate the following:

a. June samples showed more adult polychaetes than the winter sample, an expected seasonality feature.

b. Polychaetes were similar in the 1.0 mm fraction as were the presences of Eohaustorius spp. and nemerteans.

c. Overall impressions of the June benthic samples indicate that the sediment from which benthic samples were obtained provides a similar habitat and infaunal composition compared to that of the sediment sampled in January.

d. Stomach content analyses showed that juvenile Chinook salmon were feeding mainly on *Jassa* spp, an amphipod similar to Corophium sp, a well-documented prey item for juvenile Chinook. However, *Jassa* were not found in the benthic samples.

e. Surf smelt, sand lance and American shad were feeding largely on adult calanoid copepods, which are water column and not benthic species.

f. English sole were feeding largely on benthic juvenile polychaetes.

Juvenile Chinook salmon stomach data indicated that generally they were feeding on organisms in the water column (pelagic) and not benthic organisms. This is consistent with previous sampling efforts in Grays Harbor and elsewhere which indicate that while residing in upper estuaries as fry, juvenile Chinook have an affinity for benthic and epibenthic prey items such as amphipods, mysids, and cumaceans. As the juveniles grow and move to deeper waters with higher salinities, this preference changes to pelagic items such as decapod larvae, larval and juvenile fish, drift insects, and euphausiids (Buechner et al. 1981, Simenstad et al. 1982).

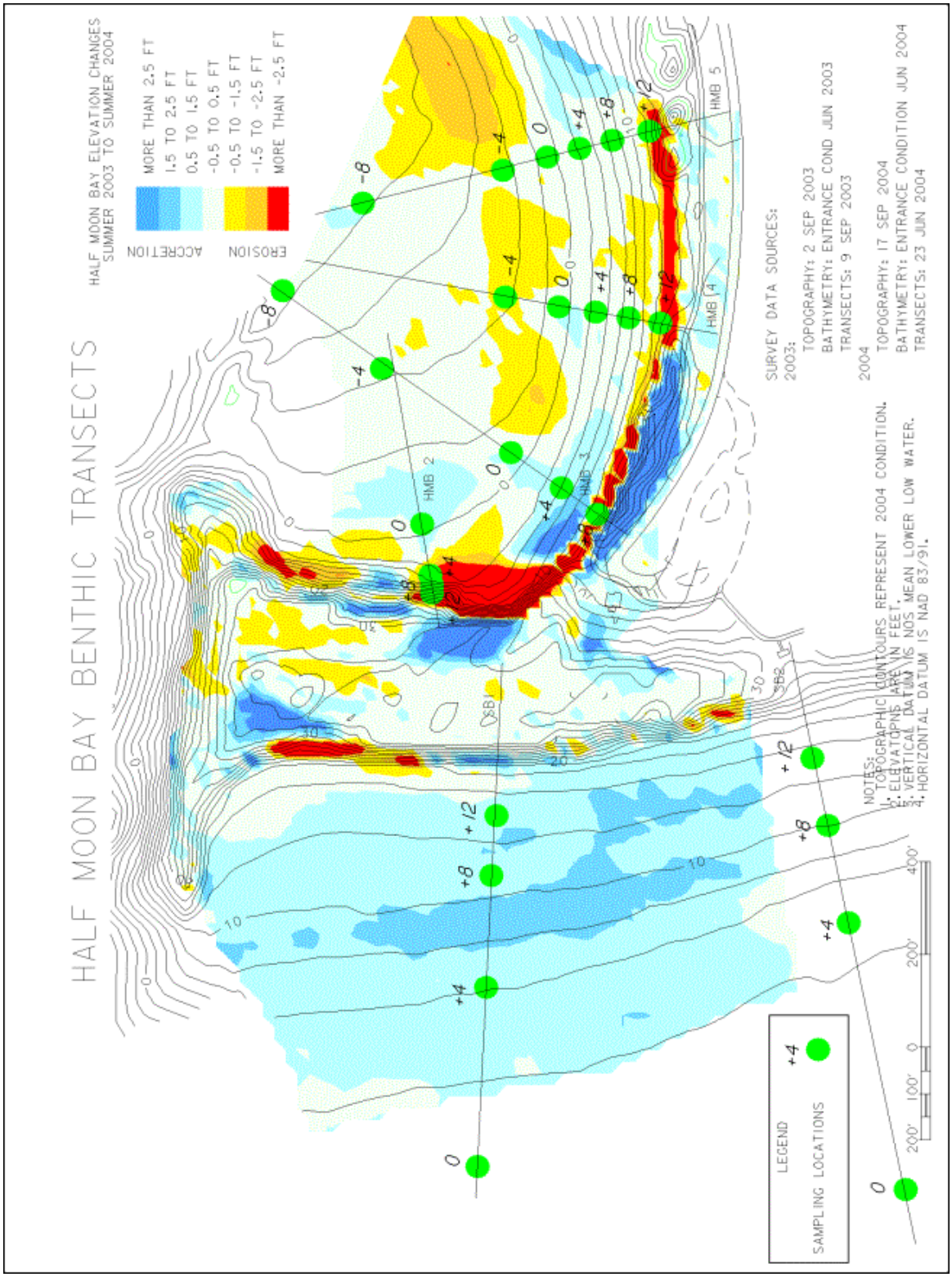
Based on benthic survey data, limited numbers of benthic and epibenthic prey resources (including harpacticoid copepods and *Eohaustorius* spp.) for juvenile salmon were present and available to salmon, but were not fed upon given the size class of salmon present. By far the dominant organism in juvenile Chinook stomach samples was the adult *Jassa* spp., although

adult dipterans, crab zoea, and Cirripedia (barnacle) parts were also were also found. *Jassa* is a tube-building amphipod, and known fouling organism, that inhabits flotsam (e.g. kelp and driftwood), pilings, and boat hulls. As they were not found in any of the Half Moon Bay benthic samples, it is probable that they were consumed by juvenile salmon during their outmigration along the docks, pilings, hulls, and riprap at Westport, and possibly in the riprap habitat at the far west end of Half Moon Bay. The second most abundant organisms in the salmon stomachs were adult dipterans, which are extremely rare in benthic data so were considered a water column food source. The third most abundant organisms were brachyuran (crab) zoea. These are vertical migrators and were likely consumed in the water column. The vegetative seeds found in abundance in one salmon stomach were likely floaters and consumed at the water surface.

English sole stomach sample data indicated these flatfish were feeding predominately on juvenile polychaetes (Family Spionidae and Opheliidae). Polychaetes from these families were found in the June benthic surveys in limited numbers, primarily at mid to lower intertidal elevations. This suggests that English sole were feeding on polychaetes derived from these elevations in Half Moon Bay

Stomach content analyses of surf smelt, sand lance and American shad indicated that these fishes were feeding in the water column, predominately on adult calanoid copepods, but also on crab zoea, barnacle nauplii, and pelagic fish eggs.

Figure 3. Benthic Invertebrate Transect Locations



3.4 Fish

Half Moon Bay provides habitat for a variety of fish species. The Corps contracted R2 Resources, Inc. to conduct beach seine surveys in the spring of 1999 and the summer of 2004. During both years of sampling, seining occurred in two sites in Half Moon Bay. Site 1 is located 300 feet south of the easternmost edge of the South Jetty, while Site 2 is located approximately 1,200 feet east of Site 1. These sites corresponded to the locations of benthic transects 3 and 5 (Figure 3). Seining catches included large numbers of surf smelt, northern anchovy, juvenile American shad, and various surfperch species. Salmonid catches included Chinook, coho, chum, cutthroat trout, and steelhead salmon. Both Dungeness and Pacific Red Rock crabs were also present during seine surveys. A preliminary list of all species caught during the 2004 sampling events can be found in Table 1.

Table 1. Preliminary Data: Total number of fish captured in 2004 beach seine surveys in Half Moon Bay.

	21-Jun-04		29-Jun-04		8-Jul-04		15-Jul-04		22-Jul-04		29-Jul-04		4-Aug-04		11-Aug-04		17-Aug-04		24-Aug-04		
	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West	East	West	Total
American shad	0	0	0	4	64	1	17,083	0	0	191	0	0	0	8	0	0	0	0	0	0	**17,351**
Bay pipefish	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	**4**
Cabezon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	**4**
Chinook salmon	73	49	83	470	23	102	419	107	154	128	31	49	14	1	11	15	14	4	5	0	**1,752**
Cutthroat trout	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Dungeness crab	10	211	3	208	0	518	1	20	11	59	5	82	4	22	0	0	4	89	0	0	**1,247**
Greenling spp.	1	10	0	1	0	0	0	0	0	2	0	0	0	19	0	1	0	13	0	3	**50**
Gunnel / Prickleback spp.	0	2	0	2	1	9	0	1	0	95	0	1	0	2	0	0	0	1	0	1	**115**
Lingcod	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	**2**
Northern anchovy	0	0	0	4	480	16	24,201	1	0	190	1	4	0	5	0	1	5	0	0	0	**24,908**
Pacific herring	0	1	1	4	0	1	0	0	0	3	0	0	1	0	0	0	1	0	0	0	**12**
Pacific sandfish	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**1**
Pacific tomcod	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Perch spp.	422	77	808	640	305	525	364	869	815	488	214	567	454	401	304	144	82	142	83	173	**7,877**
Rainbow trout	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Red rock crab	2	1	0	1	0	2	0	0	0	9	0	0	0	0	0	0	0	6	0	0	**21**
Rockfish spp.	0	24	3	12	0	0	0	0	0	70	0	0	0	34	0	18	1	426	0	11	**599**
Pacific sand lance	0	0	0	17	0	0	69	12	5	0	0	0	0	0	0	0	65	0	0	316	**484**
Sculpin spp.	12	56	1	50	4	131	4	15	8	36	6	30	6	30	10	13	25	41	3	36	**517**
Surf smelt	52	463	374	1,154	1,000	176	4,815	1,712	506	604	20	43	202	94	340	1,165	410	133	6	29	**13,298**
Sole spp.	13	101	0	13	0	34	0	1	8	40	1	2	5	10	1	1	6	7	0	1	**244**
Starry flounder	1	6	2	4	0	2	0	0	0	0	0	1	2	4	0	0	1	0	0	0	**23**
Threespine stickleback	2	2	1	6	1	0	0	0	7	0	2	1	3	2	3	0	9	3	0	1	**43**
Total	*588*	*1,003*	*1,276*	*2,592*	*1,878*	*1,518*	*46,956*	*2,739*	*1,514*	*1,915*	*280*	*781*	*691*	*632*	*670*	*1,358*	*623*	*870*	*98*	*573*	***68,555***

3.5 Shorebirds

Reference section 4.3 of the February 2004 *South Jetty Breach Fill Maintenance Final EA* for a general discussion of wildlife fish resources at Half Moon Bay. In general, Grays Harbor is a major shorebird staging area, and a critical part of the Pacific Coast shorebird migration in the spring. Herman and Bulger (1981) identified the types of habitats in Grays Harbor that are of primary importance to shorebirds and the extent to which different substrates are used by various species. Small sandpipers, dowitchers, and knots forage on mudflats with a high silt content, while plovers generally prefer sandier substrates. Turnstones usually forage among cobble and rock, a substrate type that occurs only locally in Grays Harbor.

As little has been documented about shorebird usage at Half Moon Bay, in September, 2004 the Corps contracted with an independent consultant to: (1) conduct a literature search/review for shorebird usage of Grays Harbor (2) review relevant studies that identify impacts to shorebirds based on habitat modifications, and (3) prepare a detailed study design that will provide a framework for the Corps to conduct detailed shorebird surveys of Half Moon Bay from November, 2004 to Spring, 2005.

3.6 Threatened and Endangered Species.

The sixteen species listed as either threatened or endangered and potentially found in Grays Harbor, and information on these species' life histories is found in section 4.4 of the February 2004 *South Jetty Breach Fill Maintenance Final EA.* In November, 2004, a biological evaluation (BE) per Section 7 of the Endangered Species Act was prepared for these interim actions. Section 7 ESA consultation has not been completed as it is under review by USFWS, and the BE will be made available on the Corps website once the consultation is complete.

3.7 Recreation

Reference section 4.6 of the February 2004 *South Jetty Breach Fill Maintenance Final EA* for a general discussion of existing recreation resources in the Half Moon Bay area.

4. ENVIRONMENTAL EFFECTS

4.1 Geology/Sediment Dynamics

Implementation of Responsive Actions No. 1 or 2 would replace some of the breach fill material lost through erosion. Maintaining the height and width of the breach fill would reduce the risk of overtopping, therefore reducing the risk of a breach, and will not slow erosion rates. Future maintenance material would be required if the objective were to maintain the height and width of the breach fill and/or shoreline position.

Approximately 2.3 acres of upland would be directly impacted by the proposed contingent placement of sand. No intertidal habitat would be directly affected. The existing beach substrate is predominately sandy, so the nourishment material would be of a very similar grain size. A substantial portion of the sand placed in Responsive Action No. 1, and subsequently distributed along the shoreline largely through storm events, would be redistributed along the beach and down to lower elevations by waves and currents, further extending the footprint indirectly

affected, through natural processes, by the placement action. Sand from Half Moon Bay is transported by cross and longshore currents to deeper waters in the outer bay and the Grays Harbor inlet, where tidal flushing returns the material to the natural littoral process, some of which moves offshore.

Any removal of material from the Point Chehalis revetment extension mitigation stockpile is not expected to affect Corps compliance with the inter-agency mitigation agreement for the Point Chehalis revetment extension project. Based on a comparison of the 2001 - 2004 survey data, the erosion rate in the vicinity of the mitigation stockpile is approximately 5,000 to 10,000 cubic yards per year (cy/yr). At this time the stockpile contains approximately 180,000 cy of sand, of which about 125,000 cy is actually located in an area that would be subject to erosion. If either Responsive Action 1 or 2 were determined to be necessary, 20,000 cy would be borrowed from the mitigation site this fall or winter, and approximately 10,000 - 30,000 cy may be borrowed for each subsequent episode. Assuming that the erosion rate is 10,000 cy/yr, the combined loss of material from the mitigation site due to combined erosion and borrow activities would be 30,000 cy this year and possibly 15,000 cy/yr in subsequent years. Under these assumptions, the presently available stockpile volume of 180,000 cy would provide material for both the mitigation requirements and the proposed breach fill maintenance for several years before re-nourishing the stockpile with maintenance dredged material would be required.

4.2 Vegetation

For responsive action No. 1, large trucks would enter the project site via the park access road. The mitigation stockpile and access ramp from the park road are unvegetated, so there would be no vegetation impacts associated with the excavation and transport of sand. Very little, if any, vegetation would be disturbed (other than perhaps the invasive European dune grass) as part of the placement along the shoreline because the dune waterward of the road has eroded away. Since no crushed rock will be placed to facilitate access, conventional trucks would not be able to traverse the sandy breach fill. Trucks with off-road capabilities or tracked front-end loaders would likely be used to place the 20,000 cubic yards of sand on top of the breach fill. Native dune grass (*Elymus mollis*) could be impacted by construction activities.

For responsive action No. 2, up to 20,000 cy of sand would be excavated and mechanically transferred from the existing buried revetment mitigation stockpile to the placement area, utilizing either truck vehicles with large tires that require no improved road, or a temporary access route with removable steel plates. Nevertheless, some native dune grass (*Elymus mollis*) could be adversely impacted by construction activities.

4.3 Benthic Invertebrates

Evaluation of the Half Moon Bay data and its interpretations indicates that the project area beaches do produce benthic fish food organisms, particularly at lower intertidal elevations, in spite of a dynamic (highly erosive/accretive) beach subject to intense oceanic wave and wind exposure throughout the year, particularly in the winter months. This intertidal project area is particularly challenging as habitat for recruitment and survival of benthic invertebrates, and would be so even in the absence of sand placed under this proposed action.

Data suggest that the intertidal and shallow subtidal areas produce limited numbers of food organisms for several fish species, including flatfishes, and various forage fish. However, many organisms found in the fish stomachs sampled were pelagic, and not benthic. Sand placement activities would not be expected to affect these pelagic prey resources.

In regards to impacts, periodic sloughing of maintenance sand, placed above +9 feet, MLLW onto the beach following storm periods would impact benthic populations initially at higher tidal elevations, then later at mid- to lower elevations, as wave action moves the sand seaward. Higher elevation benthos, primarily polychaetes and oligochaetes, would suffer mortalities in areas of extensive sloughing that results in coverings of several inches to a few feet. Benthic infauna at lower elevations, from +4 to -4 feet, MLLW, where sand accretion may vary from none to over one foot would exhibit a range of impacts, from no noticeable effect to burial and loss. However, these occurrences are similar to what would occur naturally during and following storm conditions even if no sand were placed landward of +9.0 feet, MLLW (i.e. under the No Action alternative).

Because material of similar grain size composition is being used, it is expected that new benthic assemblages similar in species composition to pre-impacted assemblages will become established in the heavily impacted areas in a relatively short time frame, perhaps within six months. Recovery of these impact areas will occur as larval and adult forms of infauna and epifauna are recruited from adjacent sandy beaches. Time for establishment of an equivalent assemblage will be dependent on degree of sand sloughing, weather conditions, and tidal actions.

Even in spite of sand placement as beach feed maintenance material, above +9.0 feet, MLLW, overall the Half Moon Bay beach area is expected to continue to produce fish food benthic organisms, although this production will always be curtailed by exposure to adverse weather and wave conditions throughout most of the year and continued erosion and deposition of beach sands, all of which will occur whether or not sand is placed as maintenance material above the mean higher high water line destined to slough into the intertidal zone and counteract natural erosive forces in the bay.

4.4 Fish

Fish and crabs are not likely to be directly impacted by either Responsive Action because sand placement would occur above the mean higher high water line (9.0 feet, MLLW) with occasional erosive sloughing onto the higher intertidal beach areas largely during storm events. In addition, the placement would occur, if at all, during a time of the year when particularly sensitive life history stages (e.g., out-migrating juvenile salmon, settling larval crabs) are not present in any numbers in the project vicinity. Turbidity would not be expected to increase substantially above ambient conditions due to the predominantly sandy nature of the dredged material and the large quantity of suspended sand currently transported via longshore drift in the project area.

A documented surf smelt spawning area is located along the Pacific Ocean southwest of the project and herring spawning occurs in the Elk River estuary and South Bay to the southeast, but no forage fish spawning is known to occur in Half Moon Bay. Given the high wave energies and steep bathymetry of Half Moon Bay, only sparse marine vegetation is present, including patches

of *Fucus* and *Ulva* sp. and bull kelp (*Nereocystis* sp.) in the protected northwest corner of the bay, that could serve as suitable herring spawning substrate.

Preferred substrate for surf smelt spawning is coarse sand and pea gravel. Substrate on the Half Moon Bay shoreline is either of a small grain size, or much larger grain size in the case of previously placed transition gravel/cobble, so it is probably not suitable for surf smelt spawning.

Washington Department of Fish and Wildlife (WDFW) has surveyed the Half Moon Bay shoreline for evidence of sand lance spawning, but has not found any eggs (Burkle, 2003). Telephone conversations with Dan Penttila, WDFW, suggest that suitable sand lance spawning substrate may currently exist along the shorelines of Half Moon Bay, however wave energy may be too high to support successful sand lance reproduction (Penttila, 2004). The Corps is planning to partner with the WDFW to conduct forage fish egg sampling from November 2004 to April 2005 in HMB following standard protocol established by WDFW. This survey will document the presence or absence of Pacific sand lance and surf smelt spawning in the Half Moon Bay area during the fall/winter timeframe. A final report prepared by WDFW documenting the results of the forage fish egg survey is expected in May, 2005.

4.5 Shorebirds

Corps wildlife biologists conducted cursory shorebird surveys during October, 2004, documenting species composition, habitat usage, and behaviors. During these surveys, no shorebirds were observed using the project area. Birds that were observed using the area were a variety of gulls, brown pelicans, cormorants, common loons, and crows. Numerous beachcombers, surfers, and people with dogs roamed often and freely around the project site. This intense human usage of the project area is likely limiting shorebird use of the site. After the Spring migration of 2005 observations, a final contractor report will be prepared for the Corps and should be available to the public in early Summer, 2005. The report is expected to provide additional information on which to predict impacts on project area bird populations resulting from any future interim breach fill actions.

4.6 Threatened and Endangered Species.

Effect determinations in the Corps Biological Evaluation indicate that either responsive action, if implemented, would not be likely to adversely affect bull trout, brown pelican, snowy plover, marbled murrelet, and the bald eagle. Further, either responsive action, if implemented, would have no effect on other listed species (Table 2).

Table 2. ESA Listed Species Effect Determinations.

Species	Listing Status	Effect Determination
Bull Trout *Salvelinus confluentus*	Threatened	Not likely to adversely affect
Brown Pelican *Pelecanus occidentalis*	Endangered	Not likely to adversely affect
Western Snowy Plover *Charadrius alexandrius nivosus*	Threatened	Not likely to adversely affect

Marbled Murrelet *Brachyramphus marmoratus*	Threatened	Not likely to adversely affect
Bald Eagle *Haliaeetus leucocephalus*	Threatened	Not likely to adversely affect
Oregon Silverspot Butterfly *Speyeria zerene hippolyta*	Threatened	No Effect
Steller Sea Lion *Eumetopias jubatus*	Threatened	No Effect
Humpback Whale *Megaptera novaeangliae*	Endangered	No Effect
Blue Whale *Balaenoptera musculus*	Endangered	No Effect
Fin Whale *Balaenoptera physalus*	Endangered	No Effect
Sei Whale *Balaenoptera borealis*	Endangered	No Effect
Sperm Whale *Physeter macrocephalus*	Endangered	No Effect
Leatherback Sea Turtle *Dermochelys coriacea*	Endangered	No Effect
Loggerhead Sea Turtle *Caretta caretta*	Threatened	No Effect

4.7 Recreation

For responsive action No. 1, recreational impacts would be very similar to those discussed in Section 5.6 of the February 2004 *South Jetty Breach Fill Maintenance Final EA.* For responsive action No. 2, placing sand on top of the breach fill area south of the jetty (Figure 2) would similarly temporarily (2-3 weeks) restrict pedestrian access to the Pacific Ocean beach in the sand placement and truck access route areas. After construction, public access to the Pacific Ocean beach would be similar to the present case. Views of the ocean from parking areas and vicinity would be unaffected. Views of the ocean and Half Moon Bay (from automobile) from the western end of the bay would continue to be restricted due to the high elevation of existing and placed sands.

5. MITIGATION

The contractor would be instructed to avoid native dune grass (*Elymus mollis*) planted in November, 2002 to the maximum extent possible. Construction techniques that are being considered in this effort include the use of unvegetated access ways, use of vehicles with large tires that require no improved road, or construction of a temporary access route using removable steel plates.

If any native dune grass plants are severely damaged by construction, the Corps would replant affected breach fill areas with appropriate numbers of sprigs to compensate for plants lost. Up to

20,000 sprigs would be planted during the spring of 2005. Dune grasses that would be unavoidably present in the construction footprint would be harvested and used potentially as donor plants.

This effort will concentrate on areas that were disturbed as part of construction activities, and areas not densely planted as part of the 2002 revegetation effort. The dune grass will reduce wind erosion of the breach fill.

6. CUMULATIVE EFFECTS

The cumulative effects of Half Moon Bay and vicinity maintenance activities up to February 2004 are discussed in Section 7 and Appendix B of the February 2004 *South Jetty Breach Fill Maintenance Final EA*. Interim actions that would be implemented in response to trigger thresholds being met would merely maintain the status quo through the placement of sand in the vicinity of Half Moon Bay and South Beach, in order to protect against an undue risk of development of conditions that could eventually lead to a breach of the South Jetty area. Especially with responsive action No. 1 (placement of sand along the west/southwest shoreline of the bay) this material would eventually be replacing sand lost to erosive forces. Contingent interim action, if implemented, preserving the status quo, would not produce any incremental or cumulative environmental effects on biological resources or recreational uses of the South Jetty, Half Moon Bay, and environs.

7. ENVIRONMENTAL COMPLIANCE

7.1 National Environmental Policy Act

This draft supplemental environmental assessment (EA) satisfies the documentation requirements of NEPA. A draft Finding of No Significant Impact (FONSI) can be found in Appendix A.

7.2 Endangered Species Act

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed or proposed threatened or endangered species.

Refer to Sections 3.6 and 4.6 of this supplemental EA for information on the Corps biological evaluation and summary of listed species effects determinations. The BE was sent to the USFWS in November 2004 for review.

7.3 Clean Water Act

The Corps must demonstrate compliance with the substantive requirements of the Clean Water Act (CWA) prior to discharging dredged materials into waters of the United States. A 404(b)(1) evaluation, which demonstrates compliance with the substantive requirements of the CWA, and a 401 Water Quality Certification from the Washington Department of Ecology is required for work involving discharge of fill material into the waters of the United States.

Since all fill work would occur, if implemented, above the mean higher high water depth contour (+8.90' MLLW at this location), no discharge of dredged materials will occur in waters of the United States. Therefore, the project does not fall under the jurisdiction of the Clean Water Act.

7.4 Coastal Zone Management Act

The Coastal Zone Management Act of 1972, as amended, requires Federal agencies to carry out their activities in a manner which is consistent to the maximum extent practicable with the enforceable policies of the approved state Coastal Zone Management Program.

The Corps prepared a Coastal Zone Management Act Consistency Determination for the proposed action to ensure that the proposed work complies with the policies, general conditions, and general activities specified in the City of Westport Shoreline Management Master Plan and the State of Washington Shoreline Management Program. The consistency determination was submitted to the Department of Ecology for review on October 18, 2004, with a copy also provided to the City of Westport.

7.5 National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 requires that the effects of proposed actions on sites, buildings, structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. The project area is composed of fill material and recently deposited sand deposits which precludes the possibility of prehistoric or early historic-period archeological deposits being present. A professional pedestrian archeological survey of the project area in late 2003 conducted by the Corps did not produce evidence of possible shipwreck remains. Background research indicates that there are no reported shipwrecks within the project area. The Corps sent a letter report to the Washington State Historic Preservation Officer (SHPO) stating the negative results of the archeological survey and background research and recommending a determination of no historic properties affected for the project. A letter concurring with this determination was received from the SHPO on September 30, 2003.

7.6 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act requires Federal agencies to consult with the NOAA-Fisheries regarding actions that may affect Essential Fish Habitat (EFH) for Pacific coast ground fish, coastal pelagic species, and Pacific salmon. The Act defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Descriptions of EFH are provided in Fishery Management Plans produced by the Pacific Fisheries Management Council. Since the interim responsive actions would both involve maintenance sand placement above +9.0 feet, MLLW, in an approximately 2.3 acre area, in order to maintain the status quo of the upper beach area, the Corps has determined if either interim action were implemented, that there would be no effect of either action on Essential Fish Habitat in Half Moon Bay.

8. CONCLUSION

Based on the information contained in this environmental assessment supplement, Seattle District has determined that the proposed contingent interim action is not a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of a Federal environmental impact statement.

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Appendix A
Finding of No Significant Impact

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

CENWS-PM-PL-ER November 5, 2004

SOUTH JETTY BREACH FILL MAINTENANCE
INTERIM ACTION
WESTPORT, GRAYS HARBOR COUNTY, WASHINGTON

DRAFT FINDING OF NO SIGNIFICANT IMPACT

1. Background. The accompanying draft environmental assessment (EA) is a supplement to, and incorporates by reference, the *South Jetty Breach Fill Maintenance Final Environmental Assessment,* prepared in February 2004 by the Corps of Engineers: *South Jetty Breach Fill Maintenance Final Environmental Impact Statement (U.S. Army Corps of Engineers, 2004a).* That document evaluated the impacts of placement of approximately 25,000 cubic yards of sand on the south jetty breach fill in February 2004, as well as expected additional placements of sand over the subsequent three to five years. This supplement evaluates impacts on Half Moon Bay resources that would be expected if the Corps of Engineers were to take one or two interim breach fill maintenance actions to preserve the status quo by protecting against the risk of breach recurrence in the vicinity of the South Jetty, pending the development of a long term management strategy. The document also evaluates new biological information on benthic invertebrate, fish, and bird resources in Half Moon Bay gathered after the February 2004 EA was finalized. Also described are the responsive sand placement actions that will be implemented if conditions indicate that an undue risk of a breach is developing, utilizing two pre-designated triggering criteria.

2. Purpose and Need. The purpose of the proposed work is to preserve the status quo, by protecting against an undue risk of the recurrence of a breach in the vicinity of the South Jetty, Westport, Washington. If conditions indicate that an undue risk of a breach is developing, one or both of two sand placement actions would be implemented to nourish the area(s) adjacent to the south jetty. This is needed to protect the south jetty and navigation channel from damage which could be caused in the event of another breach. Preventative maintenance of the breach fill is a much more cost-effective strategy to maintain the status quo than after-the-fact emergency repairs, and requires a relatively small quantity of material to restore the height of the fill area. Proactive action could prevent more costly and voluminous replacement if a breach were allowed to develop.

3. Proposed Actions. There are two potential actions proposed on a contingent basis if triggering conditions arise that, taken together, would consist of placement of up to 40,000 cubic yards of sand on the south jetty breach fill prior to February 14, 2005. The sand would be excavated from the existing Half Moon Bay direct beach nourishment dredged material disposal site, which is an upland stockpile situated above the Point Chehalis revetment extension constructed in 1999.

Two trigger thresholds have been developed to guide the decision of whether or not to implement an appropriate responsive action. If neither of the triggering thresholds are met, the no action alternative would be selected and the Corps would not take an interim action to prevent further loss of breach fill material at this time. The action-triggering thresholds and corresponding responses are as follows:

Threshold No.1: It is determined through evaluation of pertinent survey data that 15,000 cubic yards of sand has eroded from the southwest corner of the Half Moon Bay beach since the most recent sand placement event.

Responsive Action No.1: Placement of 20,000 cubic yards of clean sand along approximately 1,000 linear feet of beach in the southwest corner of Half Moon Bay shoreward of the +9 foot MLLW (mean lower low water) line at its natural angle of repose to minimize impacts on intertidal ecology. Currents and wave action are expected to regrade and disperse this sand eastward along the beach and offshore. Sand grain size would be consistent with existing breach fill sand grain size. Care would be taken to minimize impacts on dune grass.

Threshold No. 2: The breach fill footprint south of the South Jetty is overtopped by water from the west, resulting from a storm event(s).

Responsive Action No. 2: Placement of up to 20,000 cubic yards of clean sand on top of the breach fill area above elevation +9 feet MLLW. The precise location and quantity of placed sand would be selected based on an analysis of the most effective means of responding to the observed overtopping conditions and the most efficacious means of addressing the risk of further overtopping and head-cutting. Sand would be excavated and mechanically transferred from the existing mitigation stockpile to the placement area, utilizing either track vehicles that require no improved road or with trucks, by constructing a temporary access route using removable steel plates.

3. Summary of Impacts. Periodic sloughing of maintenance sand, placed above +9 feet, MLLW onto the beach following storm periods would impact benthic populations initially at higher tidal elevations above +4 feet, MLLW, then later at lower intertidal and shallow subtidal elevations, as wave action moves the sand seaward. Higher elevation benthos, primarily polychaetes and oligochaetes, would suffer mortalities in areas of extensive sloughing that covers from several inches to a few feet. However, these are not important fish food resources. Benthos inhabiting lower elevations, e.g. from +4 feet, MLLW and waterward, where sand accretion may vary from none to over one foot, will exhibit a range of impacts, from no noticeable effect to burial and loss. However, these occurrences are similar to what would occur naturally during and following storm conditions even if no sand were placed landward of +9.0 feet, MLLW (i.e. under the No Action alternative).

Because sand of similar grain size composition to the existing breach fill is being used, new benthic assemblages similar in species composition to pre-impacted assemblages should become established even in the heavily eroded/accreted areas in a relatively short time frame, within 6 to 12 months. Recovery of these impact areas will occur as larval and adult benthos are recruited from adjacent areas. Time for the establishment of an equivalent assemblage will be dependent on degree of sand sloughing, weather conditions, and tidal actions.

Even in spite of placement of beach feed maintenance material, overall the Half Moon Bay beach area is expected to continue to produce fish food benthic organisms, although this production

will always be curtailed by exposure to adverse weather and wave conditions throughout most of the year and continued erosion and deposition of beach sands, all of which will occur whether not sand is placed as maintenance material above the mean higher high water line and destined to slough into the intertidal zone and protect against natural erosive forces in the bay.

Juvenile Chinook salmon and forage fish should not be significantly impacted by any sand placement. These salmon juveniles use the Half Moon Bay shoreline as a final shallow water migration corridor prior to entering the ocean, feeding on pelagic organisms rather than benthic organisms. Similarly, based on stomach content analyses, forage fish tend to feed in Half Moon Bay on pelagic organisms while flatfish diets consists of benthic organisms. Therefore, implementation of responsive action No. 1 would not be expected to directly impact fish feeding or migrating through the project area. Dune grass may be impacted by either responsive action, but mitigation will involve Spring 2005 plantings of equivalent numbers of plants lost during construction. Shorebirds are not expected to be significantly impacted by either responsive action. Relative to threatened and endangered species, either responsive action will have **no effect** on the marine mammal and sea turtle species under the jurisdiction of NOAA Fisheries, and may affect, but is **not likely to adversely affect** species under the jurisdiction of USFWS. Either responsive action will have no substantive impact on recreation. Either responsive action would be in compliance with all applicable and pertinent laws and acts.

Relative to cumulative impacts, implementation of either responsive action to maintain the status quo would not contribute in any degree to overall cumulative effects of Grays Harbor maintenance activities.

4. Finding. Based on the evaluation provided in the attached EA supplement, and summarized here, Seattle District has determined that this contingent interim action is not a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of an environmental impact statement.

_____ _____

Date

Debra M. Lewis
Colonel, Corps of Engineers
District Engineer